

**REMARKS**

This Reply, filed in response to the Office Action originally mailed February 17, 2009 is believed to address all and every issue raised in the Action. A favorable reconsideration of the application is respectfully requested.

**Claim Status**

Claims 1-7 are pending in the application, of which claims 2-5 are withdrawn from consideration as being directed to non-elected invention. Claims 1, 6, and 7 are amended to correct a typographical error and to more clearly set forth the claimed subject matter.

**Formal Matters**

Applicants thank the Examiner for accepting the drawings filed on October 5, 2006. Further, Applicants thank the Examiner for acknowledging receipt of the priority document of Applicants foreign application no. KR 10-2004-0024704, filed April 10, 2004 submitted under 35 U.S.C. 119(a)-(d). The Examiner indicated that Applicants have not provided an English translation of the aforementioned priority application and that Applicant is encouraged to supply the missing translation. However, Applicants submit that an English translation of the priority document is not necessary, unless there is a prior art reference, which is published between the foreign priority date and the U.S. filing date of the instant application and Applicants wish to antedate. Currently, there is no such intervening prior art reference cited by the Examiner and a verified English translation of the priority document is not required.

Applicants thank the Examiner for acknowledging receipt of the Information Disclosure statement filed on October 5, 2006 and returning an initialed copy of the PTO SB 08 form. The Examiner states that the Information Disclosure Statement filed on October 5, 2006 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because Applicants have not

provided, at least, the Abstract, in English, of the three foreign patent documents listed.

Applicants concurrently submit an IDS enclosing full texts and English Abstracts of JP 0408945 and DE 4240153 as well as full text of EP 0163806 (in English).

Applicants thank the Examiner for acknowledging Applicant's election without traverse of Group I, drawn to pentaerythritol derivatives represented by the Formula 1, in the reply filed on December 16, 2008. Further, Applicants thank the Examiner for acknowledging that claims 2-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Additionally, Applicants thank the Examiner for acknowledging Applicant's election with traverse of the species election requirement, wherein pentaerythritol ethoxylate (15/4 EO/OH) glycolic ester ethoxylate lauryl ether (pentaerythritol ethoxylate (15/4 EO/OH) laureth-6 carboxylate) in the reply filed on December 16, 2008. The traversal was on the grounds that no burden would exist if the election requirement were not maintained. Furthermore, Applicants submitted that all species in the currently amended claim 1 have a common property or activity, and a significant structural element is shared by all of the species. Applicants thank the Examiner for indicating that in light of Applicant's Amendment filed December 16, 2008, the election of species requirement has been withdrawn.

Finally, Applicant's thank the Examiner for acknowledging and entering the Amendment filed December 16, 2008, wherein claims 1 and 2 were amended.

**Response to Objections to the Specification**

On page 4 of the Action, the Examiner objects to the abstract and indicates that the abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words.

Additionally, the specification is objected to because the Examiner that on page 7, for example, there is a "vertical line of distortion" toward the right side of the page, wherein the words of the text are illegible, at times.

Applicants submit that the Abstract has been amended to correct typographical errors. With regard to the Specification as being illegible, Applicants have reviewed a copy of the specification as it appears in the USPTO file through PAIR and noticed no such vertical line on page 7 or any other pages. Therefore, Applicants respectfully submit that a substitute specification is not necessary.

**Response to Claim Objections**

On page 5 of the Action, claim 1 is objected to because the Examiner states that the indicators for the substituents, i.e., R, m and n, in formula 1 are illegible. Additionally, the Examiner encourages Applicants to be consistent by using either the recitation "formula 1" or "Formula 1" with regard to the text in line 2 of claim 1 and the title of the illustration in claim 1, respectively.

Applicants submit that claim 1 has been amended to provide a more legible copy of Formula 1 and the recitation of "formula 1" has been replaced with "Formula 1."

**Response to Claim Rejections under 35 U.S.C. § 112, first paragraph**

**Summary of Rejections**

On page 5 of the Action, claims 1, 6 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Specifically, the Examiner states that instant claims 1, 6 and 7 recite the limitation, "derivatives", in reference to the instantly claimed compound pentaerythritol. The Examiner asserts that Applicants have not described the claimed genus of "derivatives" in a manner that would indicate Applicants were in possession of the full scope of this genus, or describe of what this genus is comprised.

Further, the Examiner rejects claims 1, 6 and 7 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that the claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Examiner asserts that review of the specification fails to disclose the recitation "independently saturated or unsaturated C6-C18 alkyl group" within the definition of the R term.

#### Responses

In response, with regard to the recitation of "derivatives" in claims 1, 6, and 7, Applicants submit that claims 1, 6, and 7 have been amended to replace the recitation of "derivatives" with "compound."

With regard to the recitation of "independently saturated or unsaturated C6-C18 alkyl group" as the definition of the R term, Applicants submit that the specification fully describes the above scope. For example, the first full paragraph of page 6 of the specification, which explains the production method of the claimed compound, describes that the carboxylic acid,



can be a saturated or unsaturated, linear or branched carboxylic acid. Specific examples include glycolic acid ethoxylate hexyl ether (R = saturated carboxylic acid of C6 ),

glycolic acid ethoxylate heptyl ether (R = saturated carboxylic acid of C7), glycolic acid ethoxylate octyl ether (R = saturated carboxylic acid of C8), glycolic acid ethoxylate nonyl ether (R = saturated carboxylic acid of C9), glycolic acid ethoxylate decyl ether (R = saturated carboxylic acid of C10), glycolic acid ethoxylate lauryl ether (R = saturated carboxylic acid of C12), glycolic acid ethoxylate tetradecyl ether (R = saturated carboxylic acid of C14), glycolic acid ethoxylate hexadecyl ether (R = saturated carboxylic acid of C16), glycolic acid ethoxylate stearyl ether (R = saturated carboxylic acid of C18), or glycolic acid ethoxylate oleyl ether (R = unsaturated carboxylic acid of C18). Furthermore, amended claim 1 is supported by Examples 1-42 in the specification as filed.

Therefore, it is respectfully submitted that the range of carbon atoms of R is described in the specification such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

In view of the above, Applicants respectfully request with reconsideration and withdrawal of the § 112, first paragraph, lack of written description rejection.

**Response to Claim Rejections under 35 U.S.C. § 112, second paragraph**

On page 8 of the Action, claims 1, 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office states that with regard to instant claims 1, 6 and 7, the recitation "(Wherein R is independently saturated or unsaturated C6-C18 alkyl group; m and n are the same or different integers of which m is 0 to 10 and n is 1 to 10)" renders the claims indefinite. It was asserted that the rejection is based on parenthetical subject matter, and it is allegedly unclear to the

Examiner, or one of ordinary skill in the art, at the time of the invention, whether or not a claim limitation is intended by the parenthetical subject matter.

Applicants submit that claim 1 has been amended to remove the parenthetical around the recitation “Wherein R is independently saturated or unsaturated C6-C18 alkyl group; m and n are the same or different integers of which m is 0 to 10 and n is 1 to 10,” rendering the rejection moot.

Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. 112, second paragraph rejection.

**Response to Claim Rejections under 35 U.S.C. § 103**

On page 8 of the Action, claims 1, 6 and 7 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Linares et al. (U.S. Patent No. 5,641,479), in view of Mitsuno et al. (U.S. Patent No. 4,767,625), as evidenced by Yokoyama et al. (J Wood Sci, Vol. 44, pages 421-422; 1998).

Applicants respectfully traverse.

Applicants submit that a liquid crystalline material is called lyotropic if phases having long-ranged orientational order are induced by the addition of a solvent. Historically the term was used to describe materials composed of amphiphilic molecules. Such molecules comprise a water-loving 'hydrophilic' head-group (which may be ionic or non-ionic) attached to a water-hating 'hydrophobic' group (see Wikipedia “lyotropic liquid crystal” at [en.wikipedia.org/wiki/Lyotropic\\_liquid\\_crystal](http://en.wikipedia.org/wiki/Lyotropic_liquid_crystal)).

The skin barrier, which is made up of keratinocytes and lipids, is crucial in the protective function. Lipids between keratinocytes are the most important factors for the skin barrier. The lipids consist of ceramides, cholesterol and fatty acids, and have a unique lamellar liquid

crystalline structure, and helps for the skin to keep moistures. The present inventors found that by using the pentaerythritol compounds of the present invention, instead of using ceramides, a lamellar liquid crystalline structure which is similar to lipids can be formed and it helps to keep skin moisture.

Linares discloses an aqueous foaming cosmetic composition comprising (a) imidazolium derivative of formula 1, (b) polyol alkoxy ester and (c) water. It also discloses that these esters have high molecular weights ranging from about 4000 to 8000, and the preferred polyol alkoxy ester is Crothix (see column 5, lines 1-2).

However, the polyol alkoxy ester of Linares, which the Office considers as corresponding to the pentaerythritol compound of the present invention, has the structure in which the hydrophilic group is a far bigger than the hydrophobic group. Such a compound has difficulty in forming a lamellar liquid crystalline structure, and it is assumed to be water-soluble. Mitsuno discloses a lamellar type liquid crystal composition for cleansing comprising (a) non-ionic surfactant, (b) water-soluble substance having hydroxyl group, (c) oil substance, and (d) water. It also discloses that the water-soluble substance, which corresponds to the pentaerythritol compound of the present invention, may be pentaerythritol (see column 2, lines 34). However, pentaerythritol has only the hydrophilic groups in its structure, thus it has difficulty in forming a lamellar liquid crystalline structure.

Furthermore, Applicants submit herewith a Declaration under Rule 132 providing the unexpectedly superior results of the claimed compound compared with those disclosed in the cited references and other pentaerythritol compounds. As can be seen in the Rule 132 Declaration, the compounds defined in claims of the present application show unexpectedly superior moisture retention activity over the compounds taught by references.

With regard to claim 7, the Office concedes that neither Linares nor Mitsuno specifically discloses the pentaerythritol derivatives represented by the formula 1; however, the Office alleges that Yokoyama recites a process of adjusting the amount of alditol, an acyclic polyol, and/or hydroxyl groups to determine the degradation rate. Therefore, the Office asserts that determination of the optimum characterization of the composition would have been a matter well within the purview of one of ordinary skill in the art, at the time of the invention, through no more than routine experimentation.

Applicants respectfully disagree. Yokoyama is directed towards the effect on reactivity during oxygen bleaching based on the nature and number of hydroxyl groups in a molecule, and discloses nothing related to preparing or applying pentaerythritol derivatives to the skin. Thus, it is clear that the Office is using a hindsight analysis in alleging that a skilled artisan would have envisaged a skin moisturizer or liquid crystal base composition comprising pentaerythritol derivatives, as disclosed by Linares et al. and Mitsuno et al., respectively. More importantly, as discussed above with respect to patentability of base claim 1, claim 7 which refers to claim 1, also should be patentable over the cited references. Furthermore, applicants note that none of the references teach a skin moisturizer containing pentaerythritol.

In view thereof, reconsideration and withdrawal of the 35 U.S.C. § 103 rejection of claims 1, 6, and 7 is respectfully requested.

### **Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.



The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Sunhee Lee/

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

---

Sunhee Lee  
Registration No. 53,892

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: May 15, 2009